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To Whom It May Concern,

Copy Mary Ann, Pete, Sharon, Karen

Re: Response Adequacy Regarding the Birch Spring Monitoring Issues per: Tech Directive 005, Bear Canyon Mine, ACT/015/025, Emery County, Utah

#2

The following provides some clarification to the analysis of the above-referenced issue as stated in the Mach 24, 1998 memo.

On page 2 of the analysis, under *Birch Spring Development History*, the third paragraph states:

> "In Co-Op's letter Charles Reynolds noted that water is issuing from the area between Huntington Creek and Birch Spring. He felt these flows may be water that was diverted from the Birch Spring collection system through fractures created or opened as a result of using explosives during the 1984 redevelopment of the spring. Although this could account for an initial loss in flow, it probably would not cause a continued decline in flow unless dissolution or erosion were enlarging the channels."

Co-Op noted the presence of this water in 1997. At that time, it appeared from the vegetation that the seep may have been present for two or three years prior, but was fairly recent. Co-Op does not feel that the seep is a direct result of potential fracturing which occurred in 1984, or the seep would have been present at that time. Rather, Co-Op feels that the seep may be a result of the collection system becoming plugged, reducing the quantity of water which the system is capable of collecting. As precipitation has increased, the additional water may be bypassing the collection system through the colluvium or fractures which may be present due to inability of the collection system to capture it. Co-Op feels the continued decline may be the result of reduced function of the collection system.

On page 3 of the analysis, under *Birch Spring Hydrogeology*, a discussion is given of three faults, one in the Tank Seam, one in the Blind Canyon Seam, and one South of Birch Spring, which strike N17°E. Co-Op agrees that additional detailed mapping of the faults, joints and fractures are needed around Birch Spring. However, Co-Op offers the following information concerning these faults.

The analysis states:

> "...there is a possibility that secondary faults could be transporting water across the Blind Canyon fault from the saturated sand channel that is exposed in the Bear Canyon Mine to Birch Spring."

The fault shown in Figure 1 of Appendix C as being intercepted in the Tank Seam was also observed in the Blind Canyon Seam in the 3rd West Section. In the Blind Canyon Seam, the northern end of the fault was encountered. The fault appears to terminate near the Southern end of the 3rd West Bleeders, and does not continue North to intersect the sandstone channel. Where the fault was encountered, no water was found in either the Blind Canyon seam and Tank Seam. This would indicate that within the area of the coal zone, water is not being conducted through the fault, horizontally or vertically. In addition, this fault appears to be closed in the areas it has been encountered, and not likely to conduct a significant amount of water.

The analysis also refers to a second projected fault, shown on Figure 3 of Appendix E. From the point at which this fault is shown at the North end of the old Trail Canyon workings northward, the direction and location of the fault is only theoretical and has not been verified. As shown, this fault would intersect the sandstone channel West of the Blind Canyon fault, and not within the Bear Canyon Mine area.

The workings in the Blind Canyon Seam have been fully developed South of the sandstone channel in such a way that any faults existing which would intersect the channel at the North end of the Bear Canyon Mine and the fault in and around Birch Spring would have been encountered by the development. To date, the only secondary fault or fracture encountered adjacent to and in the vicinity of the Blind Canyon fault is the fault shown in Figure 1 of Appendix C, which does not extend to the sandstone channel. Since no faults or fractures have been observed in the Blind Canyon Seam workings, the theory proposed in this section is unlikely.

On page 5 of the analysis, it is mentioned that the subsidence area #3 appeared to be recent. Co-Op's records of the old Trail Canyon Mine documented this subsidence in 1976 and 1981, indicating the subsidence is not recent.

On page 2 of Appendix A, under 1989, it states that "Co-Op mined up against the Trail Canyon Fault. (Bear Canyon Mine MRP Plate 7-1A, dated 12/1/89)." This should read "Co-Op mined up against the **Blind** Canyon Fault. (Bear Canyon Mine MRP Plate 7-10A, dated 12/1/89)."

As I verbally discussed with Sharon Falvey, the location of the Blind Canyon Fan Portal on Figure 3 of Appendix E is incorrectly shown. The actual location is 5 pillars to the South, where the figure shows a broken line rather than pillars.

If you have any questions, please call me at (435) 687-2450.

Thank You,

Charles Reynolds, PE
Environmental Coordinator